

## Typicality and entropy of processes on infinite trees

We consider a special family of invariant random processes on the infinite  $d$ -regular tree, which is closely related to random  $d$ -regular graphs, and helps understanding the structure of these finite objects. By using different notions of entropy and finding inequalities between these quantities, we present a sufficient condition for a process to be typical, that is, to be the weak local limit of functions on the vertices of a randomly chosen  $d$ -regular graph (with fixed  $d$ , and the number of vertices tending to infinity). Our results are based on invariant couplings of the process with another copy of itself. The arguments can also be extended to processes on unimodular Galton—Watson trees. In the talk we present the notion of typicality, the entropy inequalities that we use and the sufficient conditions mentioned above. Joint work with Charles Bordenave and Balázs Szegedy.